

CLAIMS

1. A method of producing a closed container with a tight and mechanically strong seal by fastening two metal elements of the following type:

5 a) a body (1) with an essentially cylindrical or prismatic shape having a base (11) with one or more axial walls (12) and an open top axial end (1'); and

 b) a cover (2) the shape of which may be more or less complex, having one or more walls (23) to be positioned at the top axial end (1') of
10 said body (2) facing the axial wall(s) (12) of said body in the extension thereof;

characterized in that it comprises the following two steps in succession, carried out in a hostile environment (50) in an automated manner, under remote control:

15 - docking said two metal elements (1, 2) so that the ends (12', 23') of their facing walls (12, 23) are maintained in contact;

 - producing a continuous penetrative weld (**S**) over the entire periphery of said two metal elements (1, 2) at the ends (12', 23') of their walls (12, 23) which are maintained in contact.

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2. The method according to claim 1, characterized in that said first docking step comprises a guided approach of said two elements (1, 2), a docking guide (3; 30; 300) being arranged in the internal structure of one of said two elements (1 or 2).

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3. The method according to claim 1 or claim 2, characterized in that said weld (**S**) is produced without spot welding, the ends (12', 23') of the walls (12, 23) of one or the other of said elements (1, 2) to be fastened being maintained in contact by exerting a force on one or the other of said
30 elements (1 and/or 2), advantageously on the cover (2).

4. The method according to any one of claims 1 to 3, characterized in that said weld (**S**) is produced without a filler metal.

5. The method according to any one of claims 1 to 4, characterized in that said weld (**S**) is produced by open jet plasma process with melt-bath back cover and limiting the internal overpressure in the container produced.

5 6. The method according to claims 2 and 5, characterized in that said open jet opens into a groove (3b; 30b; 300b) provided with at least one degassing chimney (3d; 30d; 300d) and machined in said docking guide (3; 30; 300) arranged in the internal structure of said body (1) or said cover (2); said body (1) and/or said cover (2), advantageously said cover
10 (2), also being equipped with at least one degassing vent (21) which can be blanked off once said weld (**S**) has been produced.

7. The method according to any one of claims 1 to 6, characterized in that said weld (**S**) is produced with the container (1+2) in the vertical position,
15 with the weld axis horizontal.

8. The method according to claim 7, characterized in that said weld (**S**) is produced with the container (1+2) being fixed and with a welding head (9) which is rotated around said container (1+2) at the level of the ends
20 (12', 23') of the walls (12, 23) maintained in contact.

9. The method according to any one of claims 1 to 8, characterized in that it is carried out to produce a closed container for confined packaging and storage of hazardous waste, in particular nuclear waste.

25 10. A closed container with a tight and mechanically strong seal the structure of which comprises two metal elements of the following type fastened one with the other:

30 a) a body (1) with an essentially cylindrical or prismatic shape having a base (11) with one or more axial walls (12) and an open top axial end (11); and

b) a cover (2) with a more or less complex shape, having one or more walls (23) to be positioned at the top axial end (11) of said body (1) facing the axial wall(s) (12) of said body (1) in the extension thereof;
35 characterized in that:

- the fastening is of the butt weld (**S**) type, advantageously with no filler metal;

- its internal structure at the weld line (**S**) includes a docking guide (3; 30; 300) which has:

5 - at the weld line (**S**), on the wall (12, 23) side, a groove (3b; 30b; 300b) provided with at least one degassing chimney (3d; 30d; 300d);

- a chamfered end (3a; 30a; 300a) above or below, preferably above said weld line (**S**), on the wall (12, 23) side;

10 - its body (1) and/or its cover (2), advantageously its cover (2), include(s) at least one blanked off degassing vent (21).

11. The container according to claim 10, characterized in that said docking guide (300) is machined in the bulk of the body (1) or the cover, advantageously machined in the bulk of the body (1), or consists of an insert (3; 30) spot welded to said body (1) or to said cover (2).

12. Elements of the type:

20 a) a body (1) with an essentially cylindrical or prismatic shape having a base (11) with one or more axial walls (12) and an open top axial end (11);

or (and)

25 b) a cover (2) the shape of which may be more or less complex, having one or more walls (23) to be positioned at the top axial end (1') of said body (1) facing the axial wall(s) (12) of said body (1) in the extension thereof;

30 said elements of type a) and b) being intended for fastening to each other, more particularly by carrying out a method according to any one of claims 1 to 9, to produce a closed container with a sealed closure which is mechanically strong;

35 characterized in that the internal structure of one of said elements (1 or 2) comprises, over its entire periphery, fastened beyond the end (12' or 23') of its wall(s) (12 or 23) intended to be fastened to the end (23' or 12') of the wall(s) (23 or 12) of the other element (2 or 1) and extending beyond said end (12' or 23'), a docking guide (3; 30; 300) which has:

- beyond said end (12' or 23') on the wall (12, 23) side, a chamfered end (3a; 30a; 300a) which, during docking, can guide and position the other element (2 or 1); and

- at said end, also on the wall (12, 23) side, at which welding will
5 be carried out, a groove (3b; 30b; 300b) provided with at least one degassing chimney (3d; 30d; 300d), which can evacuate the overpressure generated to the inside of the container;
one and/or the other of said elements (1 and/or 2), advantageously the cover 2, having at least one degassing vent (21), which is accessible to
10 the gas evacuated from said groove (3b; 30b; 300b) of said docking guide (3; 30; 300) *via* said degassing chimney (3d; 30d; 300d) during welding and which can be blanked off once the weld (**S**) is complete.

13. The element according to claim 12, characterized in that said docking
15 guide (300) is machined in the bulk of said element, the body (1) or the cover (2), advantageously machined in the bulk of said body (1), or in that said docking guide (3; 30) consists of an insert, spot welded (s) to said element, the body (1) or the cover (2).

20 14. A metal part (3; 30) intended to be attached by welding (s) to the periphery of the internal structure of a body (1) or a cover (2) of a metal container at a position at which said body (1) or said cover (2) has an essentially cylindrical or prismatic shape and at which said body (1) and cover (2) are intended to be fastened by a weld (**S**), characterized in that
25 the outer periphery of its structure, which is of a suitable shape, has the following:

- a groove (3b; 30b) provided with at least one degassing chimney (3d; 30d); and
- a chamfered end (3a; 30a).